



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
25.01.2017 Bulletin 2017/04

(51) Int Cl.:
H01L 33/52 ^(2010.01) **H01L 33/60** ^(2010.01)
H01L 33/56 ^(2010.01)

(43) Date of publication A2:
27.03.2013 Bulletin 2013/13

(21) Application number: **12198155.9**

(22) Date of filing: **16.10.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

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(30) Priority: **20.10.2006 EP 06022064**

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(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
07819030.3 / 2 082 441

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(54) **Light emitting diode module**

(57) A method for manufacturing a electronic and/or optoelectronic module comprises the following steps:

- mounting a electronic and/or optoelectronic chip on a board,
- making on the board an outer ring made from a liquid resin, the outer ring surrounding the electronic and/or optoelectronic chip,

- making a central filling of the volume defined by the outer ring, the central filling being made from a liquid resin and covering the top surface of the electronic and/or optoelectronic chip,
- curing in one single step the resin of the outer ring and the central filling and making a chemically linked interface between the outer ring and the central filling.

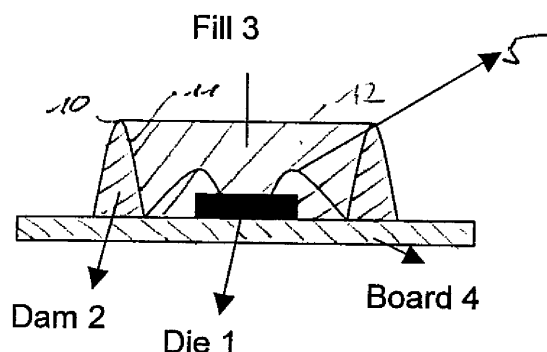


Figure 1



EUROPEAN SEARCH REPORT

Application Number
EP 12 19 8155

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 102 45 946 C1 (OSRAM OPTO SEMICONDUCTORS) 23 October 2003 (2003-10-23) * paragraphs [0018] - [0033] *	1-26	INV. H01L33/52 H01L33/60
X	US 5 851 847 A (YAMANAKA H) 22 December 1998 (1998-12-22) * column 5, line 19 - column 6, line 32 *	1-26	ADD. H01L33/56
X	US 2003/173655 A1 (RISSING L ET AL) 18 September 2003 (2003-09-18) * paragraphs [0020] - [0043] *	1-26	
X	JP 2006 066786 A (SEIWA ELECTRIC) 9 March 2006 (2006-03-09) * paragraphs [0027] - [0036] *	1-26	
X	WO 2006/048064 A1 (TRIDONIC OPTOELECTRONICS) 11 May 2006 (2006-05-11) * page 6, line 33 - page 9, line 17 *	1-26	
X	EP 0 854 523 A2 (TOSHIBA) 22 July 1998 (1998-07-22) * column 14, line 55 - column 15, line 24 *	1-26	TECHNICAL FIELDS SEARCHED (IPC) H01L
A	WO 98/23427 A1 (NEDCARD) 4 June 1998 (1998-06-04) * page 4, line 22 - page 6, line 23 *	1	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 December 2016	Examiner van der Linden, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 19 8155

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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20-12-2016

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10245946 C1	23-10-2003	NONE	
US 5851847 A	22-12-1998	JP 3393247 B2 JP H0997888 A US 5851847 A US 5861680 A	07-04-2003 08-04-1997 22-12-1998 19-01-1999
US 2003173655 A1	18-09-2003	AT 348404 T DE 10024336 A1 EP 1287558 A1 US 2003173655 A1 WO 0188978 A1	15-01-2007 22-11-2001 05-03-2003 18-09-2003 22-11-2001
JP 2006066786 A	09-03-2006	NONE	
WO 2006048064 A1	11-05-2006	AT 534148 T CN 101088172 A DE 102004053116 A1 EP 1807877 A1 JP 2008519444 A KR 20070083919 A US 2009194776 A1 WO 2006048064 A1	15-12-2011 12-12-2007 04-05-2006 18-07-2007 05-06-2008 24-08-2007 06-08-2009 11-05-2006
EP 0854523 A2	22-07-1998	DE 69838597 T2 EP 0854523 A2 TW 581325 U US 6274890 B1 US 2001042865 A1	24-07-2008 22-07-1998 21-03-2004 14-08-2001 22-11-2001
WO 9823427 A1	04-06-1998	AU 5415998 A EP 0942818 A1 NL 1004651 C2 US 6399004 B1 WO 9823427 A1	22-06-1998 22-09-1999 03-06-1998 04-06-2002 04-06-1998

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82